

WHAT IS CLAIMED IS:

1. A method of washing a photomask comprising first to third steps of:

removing organic matter and metal impurities present on the surface of a photomask;

5 removing foreign matter adhering to said surface of said photomask with H₂ gas dissolved water; and
drying said photomask.

2. The method of washing a photomask in accordance with claim 1, wherein said H₂ gas dissolved water is alkalized.

3. The method of washing a photomask in accordance with claim 2, wherein said H₂ gas dissolved water is alkalized with ammonia.

4. The method of washing a photomask in accordance with claim 2, wherein said H₂ gas dissolved water is alkalized with KOH.

5. The method of washing a photomask in accordance with claim 1, also employing ultrasonics waves in said second step.

6. The method of washing a photomask in accordance with claim 5, also employing ultrasonics waves in said first step of claim 1.

7. The method of washing a photomask in accordance with claim 5, wherein said foreign matter is particulate foreign matter.

8. An apparatus for washing a photomask comprising:
an acid tank for removing organic matter and metal impurities present on the surface of a photomask with a first washing solution;
a foreign matter removing tank for removing foreign matter adhering
5 to said surface of said photomask with a second washing solution

containing H₂ gas dissolved water;

a drying tank for drying said photomask;

first washing solution supply means supplying said first washing solution to said acid tank;

10 first control means provided on said first washing solution supply means for controlling the concentration and the temperature of said first washing solution;

second washing solution supply means supplying said second washing solution to said foreign matter removing tank; and

15 second control means provided on said second washing solution supply means for controlling the concentration and the temperature of said second washing solution.

9. The apparatus for washing a photomask in accordance with claim 8, wherein said foreign matter removing tank is provided with ultrasonics waves application means for supplying ultrasonic waves into said foreign matter removing tank.

10. The apparatus for washing a photomask in accordance with claim 8, wherein said acid tank is provided with ultrasonics waves application means for supplying ultrasonic waves into said acid tank.

11. The apparatus for washing a photomask in accordance with claim 8, further comprising aqueous ammonia supply means provided in said foreign matter removing tank for supplying aqueous ammonia of prescribed concentration into said foreign matter removing tank.

12. A washing solution for a photomask containing H₂ gas dissolved water.

13. The washing solution for a photomask in accordance with claim 12, wherein said H₂ gas dissolved water is alkalized.

14. The washing solution for a photomask in accordance with claim 13, wherein said H₂ gas dissolved water is alkalized with ammonia.

15. The method of washing a photomask in accordance with claim 1, wherein said photomask includes a halftone phase-shift photomask formed with an MoSiON film.